

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Canceled).

Claim 2 (Currently Amended): ~~The frequency synthesizing apparatus according to claim 1, characterized in that:~~ A frequency synthesizing apparatus that synthesizes a plurality of frequencies based on a reference frequency, comprising:

complex sine wave generating means for generating complex sine waves by outputting complex amplitudes corresponding to eight phases in a complex plane; and  
frequency switching means for performing frequency switching by performing complex number multiplication of the complex sine waves and the reference frequency,  
wherein

the complex sine wave generating means is constructed from two nonlinear DA converters having amplitudes  $\{-1.7, -0.7, 0.7, 1.7\}$ .

Claim 3 (Currently Amended): The frequency synthesizing apparatus according to claim 2, ~~characterized by~~ further comprising:

frequency division means for ~~for~~ [[that]] sequentially dividing divides a sampling frequency of the nonlinear DA converter into 1/2; and

a decoder that decodes three bits outputted by 1/2, 1/4 and 1/8 frequency division of the sampling frequency and generates input data for the nonlinear DA converter.

Claim 4 (Currently Amended): The frequency synthesizing apparatus according to claim 3, wherein ~~characterized in that:~~ the decoder performs the decoding using frequency

division outputs having a phase difference of  $90^\circ$  [[deg]] from each other if  $1/4$  and  $1/8$  frequency division is performed.

Claim 5 (Currently Amended): The frequency synthesizing apparatus according to claim 3, wherein ~~characterized in that~~: the reference frequency is 4224 MHz, and 2112 MHz obtained by  $1/2$  frequency division of the reference frequency is the sampling frequency of the nonlinear DA converter,[[;]] the complex sine wave generating means outputs +264 MHz by incrementing +1 phase in a positive direction of phase in the complex plane, outputs -264 MHz by incrementing -1 phase in the positive direction of phase, outputs +792 MHz by incrementing +3 phases in the positive direction of phase, and outputs -792 by incrementing -3 phases in the positive direction of phase,[[;]] and the frequency switching means obtains desired frequencies by performing the complex number multiplication of the reference frequency and the respective outputted frequencies of the complex sine wave generating means.

Claim 6 (Currently Amended): The frequency synthesizing apparatus according to claim 3, wherein ~~characterized in that~~: the frequency switching means obtains 4488 MHz, 3960 MHz, and 3432 MHz, which are respective center frequencies forming a group A of a multiband OFDM\_UWB system, by performing complex number multiplication of the reference frequency and the respective outputted frequencies of the complex sine wave generating means.

Claim 7 (Currently Amended): The frequency synthesizing apparatus according to claim 6, wherein ~~characterized in that~~: a frequency of 7128 MHz is further obtained in addition to 4224 MHz as a reference,[[;]] and the frequency switching means further obtains

7920 MHz, 7392 MHz, 6864 MHz, and 6336 MHz, which are respective center frequencies forming a group C of the multiband OFDM\_UWB system, by selectively performing complex number multiplication of either reference frequency of 4224 MHz or 7128 MHz and the respective outputted frequencies of the complex sine wave generating means.

Claims 8-14 (Canceled).